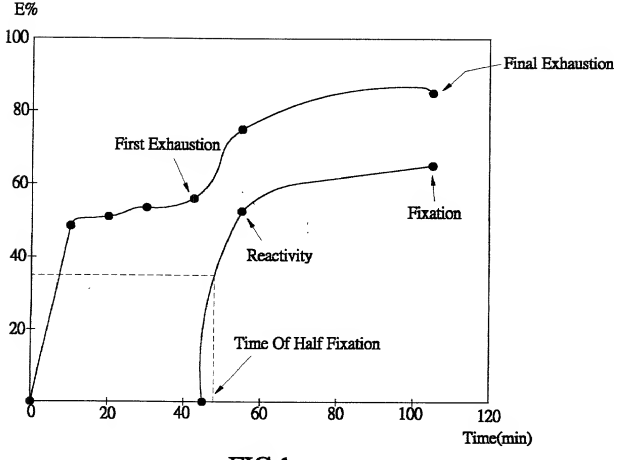
E%
100
80
60
40
20
0
20
40
60
80
100
120
Time(min)
Final Exhaustion
First Exhaustion
Fixation
Reactivity
Time Of Half Fixation

FIG.1

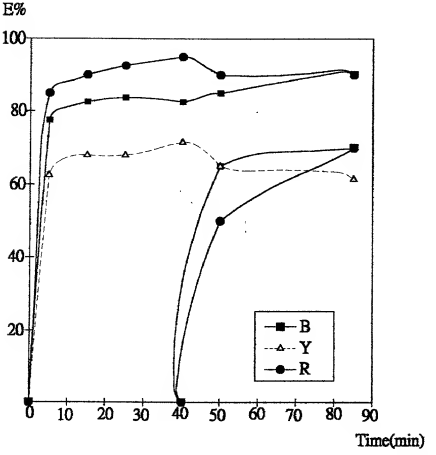

FIG.2

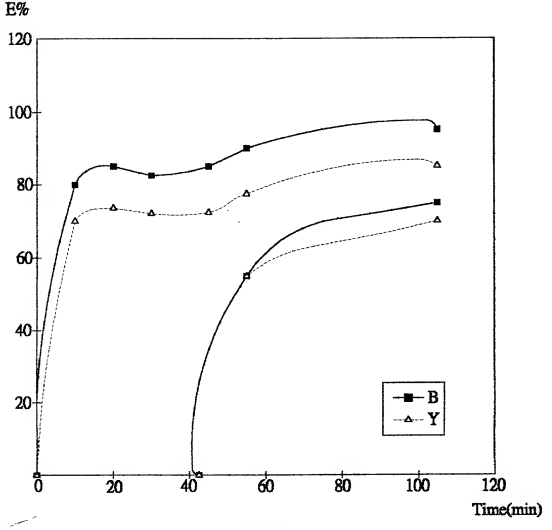

FIG.3

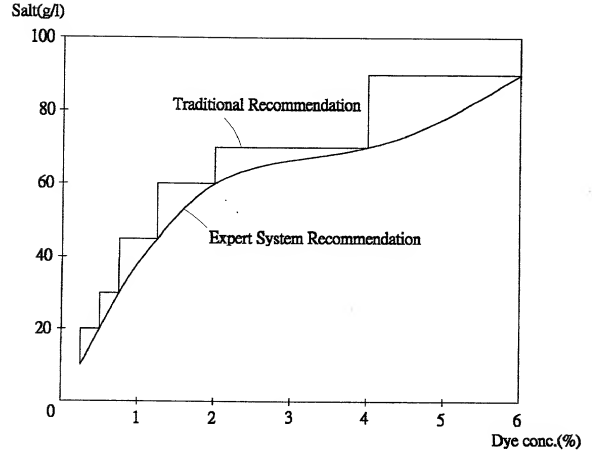
Salt(g/l)
100
80
60
40
20
0
1
2
3
4
5
6
Dye conc.(%)
Traditional Recommendation
Expert System Recommendation

FIG.4

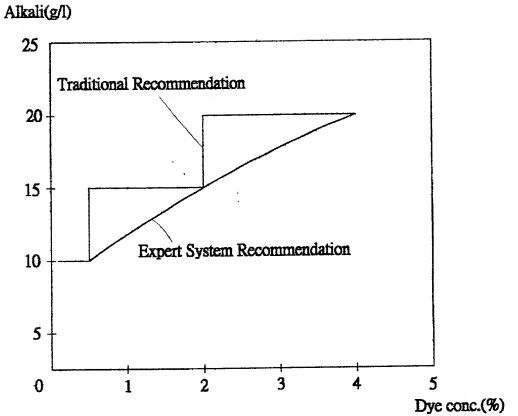
Alkali(g/l)
25
20
15
10
5
0
1
2
3
4
5
Traditional Recommendation
Expert System Recommendation
Dye conc.(%)

FIG.5

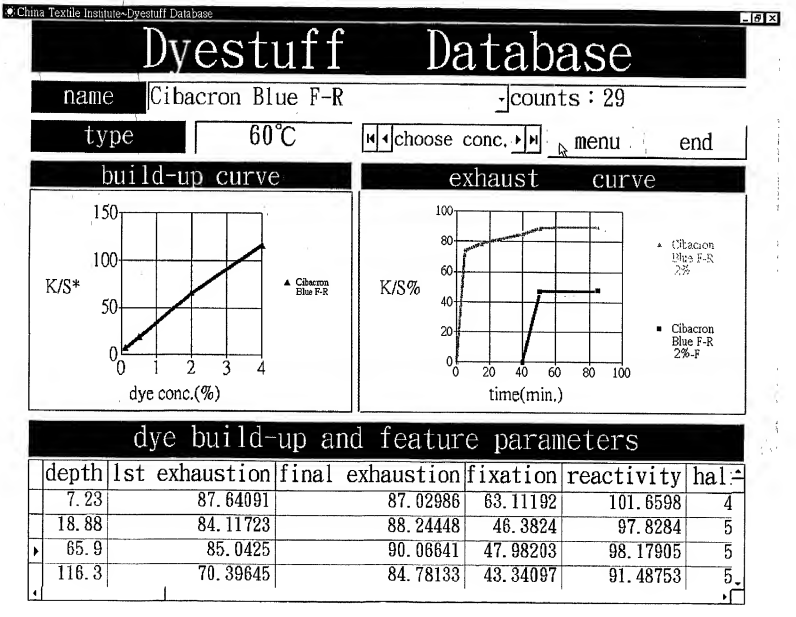
China Textile Institute-Dyestuff Database
Dyestuff Database
name
Cibacron Blue F-R
counts : 29
type
60℃
choose conc.
menu
end
build-up curve
K/S*
150
100
50
0
0 1 2 3 4
dye conc.(%)
Cibacron Blue F-R
exhaust curve
K/S%
100
80
60
40
20
0
0 20 40 60 80 100
time(min.)
Cibacron Blue F-R 2%
Cibacron Blue F-R 2%-F
dye build-up and feature parameters
depth | 1st exhaustion | final exhaustion | fixation | reactivity | hal
7.23 | 87.64091 | 87.02986 | 63.11192 | 101.6598 | 4
18.88 | 84.11723 | 88.24448 | 46.3824 | 97.8284 | 5
65.9 | 85.0425 | 90.06641 | 47.98203 | 98.17905 | 5
116.3 | 70.39645 | 84.78133 | 43.34097 | 91.48753 | 5

FIG. 6

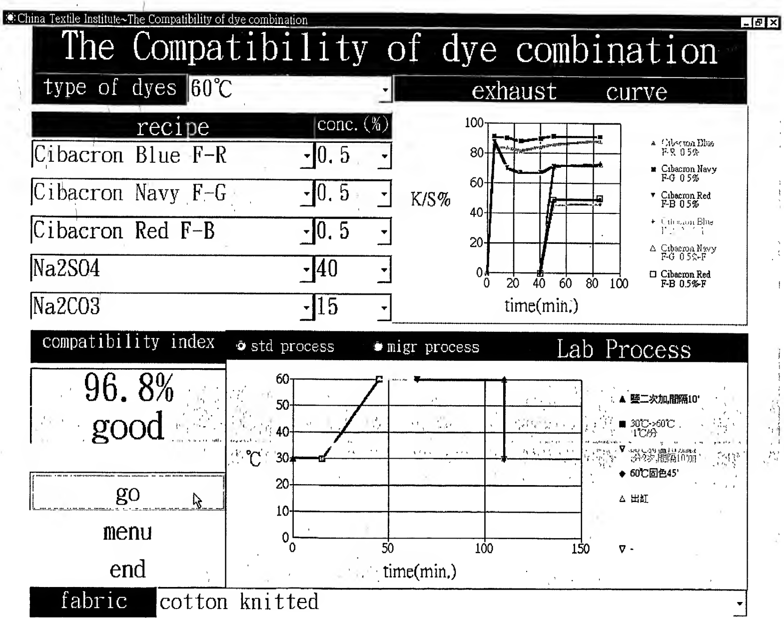
China Textile Institute~The Compatibility of dye combination
The Compatibility of dye combination
type of dyes
60℃
exhaust curve
recipe
conc. (%)
Cibacron Blue F-R
0.5
Cibacron Navy F-G
0.5
Cibacron Red F-B
0.5
Na2SO4
40
Na2CO3
15
K/S%
time(min.)
Cibacron Navy F-G 0.5%
Cibacron Red F-B 0.5%
Cibacron Red F-B 0.5%-F
compatibility index
96.8%
good
go
menu
end
std process
migr process
Lab Process
℃
time(min.)
鹽二次加,間隔10'
30℃->60℃ 1℃/分
60℃固色45'
出缸
fabric
cotton knitted

FIG. 7

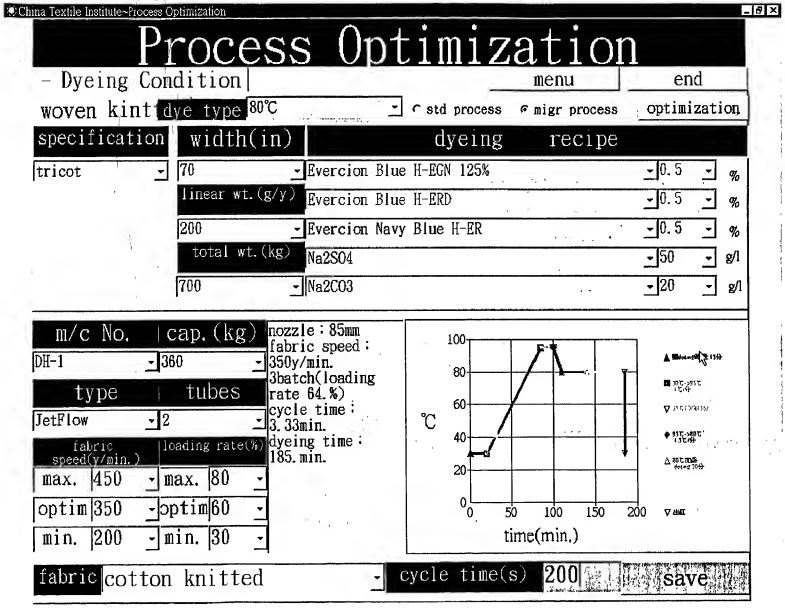
China Textile Institute-Process Optimization
Process Optimization
- Dyeing Condition
menu
end
woven kint
dye type
80℃
std process
migr process
optimization
specification
width(in)
dyeing recipe
tricot
70
Evercion Blue H-EGN 125%
0.5
%
linear wt.(g/y)
Evercion Blue H-ERD
0.5
%
200
Evercion Navy Blue H-ER
0.5
%
total wt.(kg)
Na2SO4
50
g/l
700
Na2CO3
20
g/l
m/c No.
cap.(kg)
DH-1
360
type
tubes
JetFlow
2
fabric speed(y/min.)
loading rate(%)
max.
450
max.
80
optim
350
optim
60
min.
200
min.
30
nozzle : 85mm
fabric speed : 350y/min.
3batch(loading rate 64.%)
cycle time : 3.33min.
dyeing time : 185.min.
℃
time(min.)
fabric
cotton knitted
cycle time(s)
200
save

FIG. 8

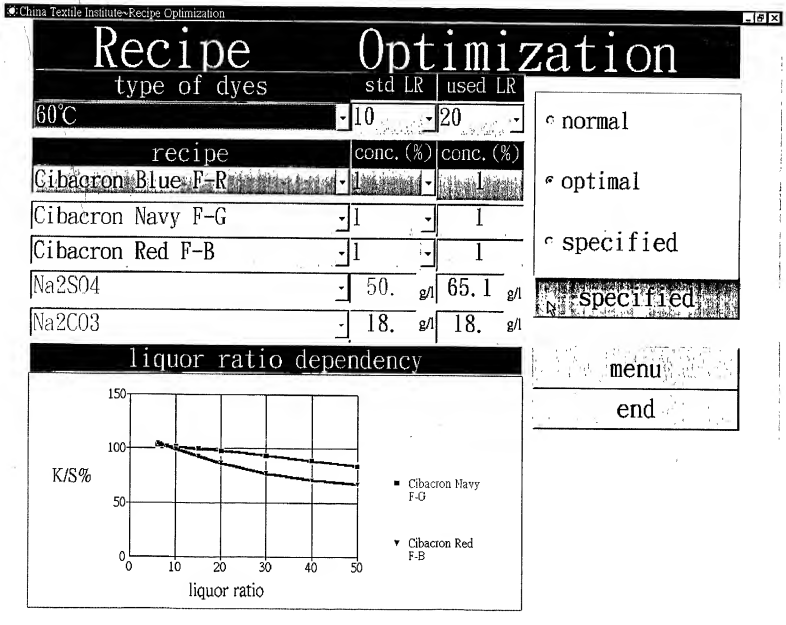
China Textile Institute-Recipe Optimization
Recipe Optimization
type of dyes
std LR
used LR
60°C
10
20
normal
optimal
specified
recipe
conc. (%)
conc. (%)
Cibacron Blue F-R
Cibacron Navy F-G
1
1
Cibacron Red F-B
1
1
Na2S04
50.
g/l
65.1
g/l
specified
Na2C03
18.
g/l
18.
g/l
liquor ratio dependency
menu
end
150
100
50
0
K/S%
0
10
20
30
40
50
liquor ratio
Cibacron Navy F-G
Cibacron Red F-B

FIG. 9